

SOLDIERING

IN THE

TROPICS

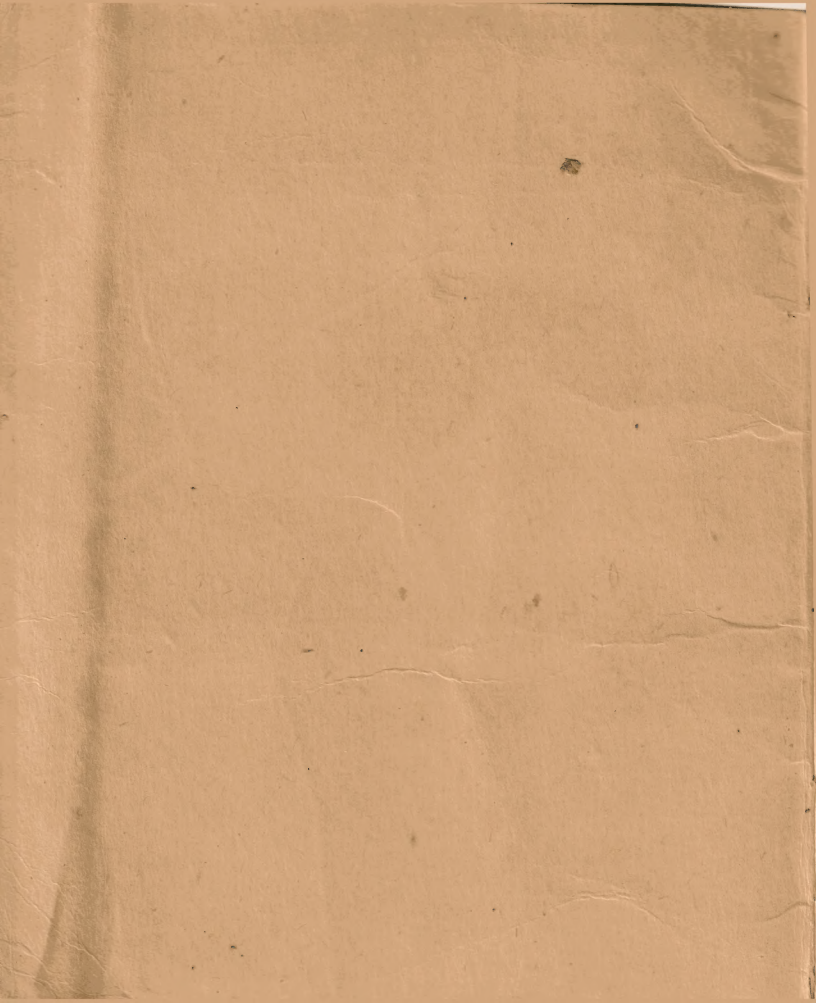
(S.W. PACIFIC AREA)

Distribution:—1 copy to all ranks in the Tropics

Adapted from the "Jungle Soldier" by the General Staff, L.H.Q., Australia, and issued under the direction of the Chief of the General Staff.

August, 1942

By Authority: Victorian Railways Printing Works,
North Melbourne. 3766/42



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FOREWORD

Soldiering in the Tropics in the S.W. Pacific Area

This pamphlet has been adapted from the "Jungle Soldier" compiled for U.S.A. Troops in the PANAMA Canal Zone and other publications prepared by AUSTRALIAN Authorities on local conditions in New Guinea and adjacent islands.

The necessity for training in Tropical Warfare is becoming increasingly apparent as reports of fighting in various theatres are received. It is therefore essential that all troops employed in the tropics have some knowledge of the conditions they are likely to come in contact with.

"Soldiering in the Tropics" is not a tactical pamphlet but endeavours to give the soldier some hints on what he should and should not do in tropical theatres of war. In the type of warfare encountered in the tropics more deaths are likely to be caused by sickness and disease than by actual battle casualties. If, however, every soldier is determined to look after himself and take the advice tendered by those of experience the incidence of sickness and disease will be reduced to a minimum.

Always remember, DISEASE IS PREVENTABLE, and it is up to every soldier to take at least elementary precautions and so defeat this most insidious of enemies.



H.Q. Allied Land Forces,
S.W. Pacific Command,
August, 1942.

Chief of General Staff.
Lieut.-General,

SOLDIERING IN THE TROPICS

SECTION I—JUNGLE FIGHTING

1. Jungle fighting is important to the Allied soldier. To-day Allied soldiers must stand ready to fight in the islands to the north of Australia. Already thousands of our soldiers are fighting in the jungles of the Solomon Islands, New Guinea and Papua.

Japanese soldiers, using equipment and tactics very similar to those recently developed by our Army, have proved that they can penetrate the worst jungles easily and successfully.

If you are an Allied soldier stationed in the tropics you owe it to yourself and to your country to learn jungle fighting.

2. You can make the jungle your friend. By hard work and intelligence you can learn to move silently and invisibly in the jungle. Then you can strike your enemy with the greatest of all advantages—surprise.

Always remember that invisibility is the best protection yet devised for the soldier and that there is no such thing as an "impenetrable jungle."

3. Surprise is the ultimate goal of all jungle tactics. The jungle soldier must fight like a native armed with more deadly weapons and advanced knowledge. In the jungle the skilled soldier can surprise his enemy, defeat him and disappear before help can arrive.

Without invisibility there is no surprise and a jungle soldier does not attack. If detected by sound or sight the jungle soldier withdraws into the cover of the jungle and seeks another opportunity to strike with surprise.

Jungle soldiers should know that raiding tactics have brought victory to small mobile forces in many lands. The renowned Mexican raider, Emiliano Zapata, leader of many successful harassing raids, gave his fighters these excellent orders: "We may get scattered, and then every man must use his own judgment, but my general orders are: Never engage the enemy except from cover, ambush him, flank him, draw him on, tease him, lure him into pursuit, exhaust him, cut back on him when he is exhausted, fade away. Do nothing that you're supposed to do; do everything that no one would dream that you'd do. Keep cover, shoot straight, and never let up."

4. The deadly dangers of the jungle do not exist for the trained jungle soldier. Likewise the danger of tropical diseases is not great for careful men who observe the laws of life in the jungle. Ordinary white men have lived and enjoyed robust health for twenty years in the worst tropical jungles, far from civilization.

5. You must be physically fit and acquire endurance to successfully move and fight in the jungle. You should be able to—

(a) March 20 miles a day for two consecutive hot days, carrying a jungle pack and rifle, without having sore feet, shoulders, legs or backs.

(b) Run one mile on a hot, tropical day in your field clothes and shoes in less than seven and one-half minutes, without feeling sick or exhausted afterwards.

(c) Cut brush while marching with a machete for one full day, without having blisters or sore muscles.

(d) Swim fifty yards wearing field clothes and shoes, without being exhausted.

These are hard first requirements. But—remember that every jungle soldier must be a self-contained independent fighting unit. He must be able to cut his way through jungle from dawn till dark for many days, carrying his arms, ammunition, food, medicine and sleeping equipment—and end up fighting.

Only after getting yourself into sound physical condition can you master successfully your problems of living and moving in the jungle. It can be done. Many men of all races move daily through the densest jungles known.

SECTION II—JUNGLE PROBLEMS

1. Germs and Insects

6. The real jungle dangers are invisible. They are germs, insects, fungi. These tiny enemies obey the fighting law of the jungle—strike with surprise. To stop germs, insects and fungi from killing or crippling you, you must learn to protect yourself against their unseen attacks. At first much time will be taken up with necessary jungle health precautions. But with practice health rules become automatic habits requiring but a small part of your day.

7. Germs are the cause of most jungle sickness. The most dangerous germs usually come from diseased natives. Therefore the most uninhabited jungles are the safest.

The wet, warm air of the tropics helps germs multiply and survive. Any man can say to himself, "To hell with germs!" and promptly get sick. But the smart soldier can lick dangerous germs in spite of being splashed with mud, soaked with sweat, and soiled with plant juices. Especially you must learn to be careful with your water, food and personal cleanliness.

Water-care and Treatment

8. Every drop of water you put in your mouth must be boiled or chlorinated. If you want to get sick in a hurry, start drinking innocent looking, crystal clear, untreated jungle water.

The best way to treat the water in your canteen or water-bottle is to use the chlorinating and detasting tablets supplied to every jungle soldier. Follow the directions on the tins; but, no matter how you chlorinate your water, remember to let it stand for at least 30 minutes before detasting and drinking.

In the jungle be sure to fill your canteen or water-bottle from small, clear streams that flow from uninhabited areas. The smaller the stream, the less chance that some of its water has come from a pig pen or a latrine. But chlorinate it if you want to live to a ripe, old age.

You can drink all the chlorinated or boiled water you desire, provided you take salt several times during the day. **Don't forget to eat salt in the jungle.**

Food-care and Selection

9. Clean food is essential. Remember that even the smallest amount of dirty food can give you a debilitating disease such as tropical dysentery, that eats out the linings of your intestines and makes you bleed internally. The following rules will help you eat only clean food:—

(a) Keep flies and all other insects off your food and utensils.

(b) Stay away from native houses, the worst sources of disease.

(c) Wash your hands before eating.

(d) If you are forced to eat foods cooked by natives, be sure you dish up the native food while it is boiling.

Put food into a plate that you yourself have washed and disinfected.

(e) Disinfect each drinking or eating vessel you use. A little strong chlorine or iodine solution will kill germs.

(f) Clean and disinfect the top of every can you open. Never keep food in a can after you open it.

(g) Cook all meats until they are well done.

(h) Cook only enough food for one meal. Do not keep cooked foods for future meals.

(i) Don't eat with your hands.

(j) Peel all fruits, and keep your fingers off the parts you put in your mouth.

10. Wild jungle foods cannot be relied upon by troops on the move. Fish and game, however, can usually be obtainable at the price of considerable time and effort. In an emergency you can easily kill fish with a grenade, or a machete and flashlight at night. Since many jungle fruits are poisonous, you should only eat fruits you are absolutely sure are edible. Treat all berries and mushrooms with suspicion; generally the mushroom found growing on the sago palm is edible, but the wise course is to ask the natives before eating it.

11. Cultivated native plants and domesticated animals, always purchaseable, are a good source of food. Paw paw and mangoes are excellent food, while a tiny patch of bananas will supply enough green bananas to feed a company, but remember to boil them. Sugar cane is nourishing and refreshing. Coconuts and limes are refreshing. Almost any native house has sweet potato, yams, taro and sago that can be put over the fire in a hurry. Always pay the natives a good price for everything you buy.

12. Dry foods are most efficient foods for a jungle soldier to carry. All foods carried in wartime should be ready to eat without cooking. Hot food is unnecessary, and heating food wastes time and energy. Hard jungle tests have proved that an ordinary man can march for weeks on two pounds daily of such dry, ready-to-eat foods as milk powder, raisins, apricots, pitted prunes, dry biscuits, grapenuts, peanuts, sugar and salt.

These dry foods should be carried in waterproof flexible containers that are light and easy to pack. Small sacks of tightly-woven cloth, boiled in paraffin, are excellent waterproof food containers. They can easily be made in any town.

A jungle soldier should start out with at least one week's dry marching ration of about 15 lbs. on his back. He carries no canned water. If he carried an equal amount of nourishment in the best canned food, he would have to pack at least 30 lbs. of "food." The needless 15 lbs. of useless water and can would make it impossible to carry the necessary ammunition and explosives for a week's jungle fighting. For remember that even a can of meat contains more water and metal than food solids. (A ration on the above lines is being developed.)

Suppose you carry vital personal medicines weighing no more than the water in one can of beans. Do you know any better way to give yourself a tremendous advantage in jungle combat without packing a single extra ounce?

For the sake of your digestion and efficiency eat your daily ration during four or more small meals. You can not eat big meals or heavy foods when you are hot and tired. If you are exhausted but have to keep on going, eat only sugar and salt. Otherwise you are almost sure to get sick.

Salt is an essential food in hot, tropical country. Be sure you take salt several times every day.

Personal Hygiene

13. Remember your personal cleanliness. Even if you are exhausted after marching, discipline yourself to do the following:—

(a) Wash your whole body, or at least your feet and private parts, every day. In the jungle you will see that even the most primitive natives wash their bodies daily and wash their clothes regularly.

(b) Carry your own soap always.

(c) Wash your socks and clothes every day. Putting on wet clothes in the morning will not hurt you, but wearing dirty clothes and socks will give you real trouble within a few days.

(d) Carry an extra pair of socks, shorts and underwear. Wear your two pairs of socks on alternate days.

Venereal Disease

14. Venereal diseases are very dangerous in the tropics. In many jungle regions 90 per cent. of all natives are infected, and native women often convey venereal diseases, such as ulcerating granuloma, which do not occur in civilised countries. Natives usually receive no medical attention. A jungle soldier cannot expect venereal treatment in the jungle. Therefore, the soldier must avoid sexual contact with native women when he is in the jungle.

Liquor

15. Don't drink liquor in the jungle. Alcohol burns up your strength and resistance. You know that if you get tight you will break every health rule you ever learned.

Malaria and Mosquitoes

16. Mosquitoes and malaria are your worst jungle enemies. Help yourself keep alive by remembering that:

(a) Tropical malaria is a deadly disease that can kill a man in two days.

(b) Tropical malaria can be avoided by an intelligent soldier.

(c) Only mosquitoes that have bitten an infected man can give you malaria. Most natives are infected with malaria. Mosquitoes do not generally fly more than a $\frac{1}{2}$ -1 mile. Therefore stay as far away (at least half a mile) from natives and native houses as you possibly can.

(d) Malaria mosquitoes bite mostly between sunset and sunrise.

(e) You must sleep under a mosquito or sandfly net.

(f) When you are outside your mosquito net at night, you must wear slacks, gaiters (leggings) and long-sleeved shirt, and headnet and gloves if your work permits, otherwise apply repellent lotion or cream.

(g) Repellent lotion or cream should be smeared thoroughly over **all** exposed parts, and renewed every hour.

(h) You must not scratch mosquito bites. Scratching usually causes infections.

(i) Never fail to take quinine, one or two 5-grain tablets, every day, or atabrin, two tablets twice a week after food while in malarious country. Never be without a bottle of quinine in your pack. If you are separated for several days, take at least two 5-grain tablets every day to be sure you will not come down with malaria when there is no one around to pick you up.

If you fall sick with malarial fever take two 5-grain quinine tablets three times a day for five days, or atebrin, one tablet three times a day after food for five days.

Jungle Pests and Fungi

17. Jungle pests will make your life unbearable if you do not learn to defeat their surprise attacks. Remember that in the jungle the strongest men often get infections from insect bites that elsewhere would amount to nothing.

(a) Jungle gnats and flies often are serious. Keep your shirt on and your sleeves rolled down. Use insect repellant when on the march.

(b) Ticks and scrub mites are often a curse. *But don't scratch them.* No matter how tired you are at night, always remove ticks without breaking off their heads in your skin. This must be done by first making each tick uncomfortable with a drop of iodine or a flame. Then you or your cobber must slowly pull each tick loose. You must do this every night to prevent diseases that ticks can give you. Mites may be removed at the end of the day by scrubbing thoroughly with a nail brush and medicated soap. If after a few days the small red blotch left by the mite becomes dark, with a hard, scaly surface, then seek medical advice.

(c) Hookworms are widespread tropical parasites. These and other strange earth inhabiting parasites get into the skin of your feet and under your toe nails. Never go barefoot at any time in the tropics.

(d) Leeches are often prevalent in the jungle. Never pull a leech off; burn it, and it will drop off. Then apply iodine to the bite.

(e) The stinging tree is found at the edges of scrub or in scrub paths reached by the sunlight. Wear correct clothing to protect against it; but if "stung," shave off the tiny hairs sticking in the skin, and apply a paste of bicarbonate of soda. Do not scratch or rub. "Conjevoi" is useless.

(f) Ants and termites swarm on the ground and in certain trees. Look for them before you camp. Get off the ground, if possible in a hammock, to avoid most ants and termites. Always hang your pack from a limb or a vine where the ants cannot reach it easily.

(g) Scorpions and centipedes often crawl into shoes, socks and clothing. Inspect yours before dressing.

(h) Lice, fleas and dangerous insects that carry the worst tropical disease all live in native houses, where a trained jungle soldier never sleeps.

18. Fungi and your feet are everlasting jungle problems. The tough little vegetable growths that cause athlete's foot and many skin troubles, such as dhobie's itch, are fungi. Tropical athlete's foot can make the skin of your feet become soft and peel, leaving your flesh raw and open to infection. Fungi grows best in wet, warm skin. The application of dusting powder, especially between the toes, is most useful. When you are marching through hot, wet jungles your feet are damp all day long. Therefore, allow your feet to dry at night. Don't ever sleep in your wet shoes or socks. If you do you can be sure that in two or three days your feet will put you out of action.

Carry a small personal bottle of Army anti-fungus medicine such as Fraser's Solution or Whitfield's Ointment. Every night put a little on your feet and any infected spots with your finger. Remove the ointment next morning or it may burn your feet. Just one more

worrysome chore, you say! But remember that if your feet go bad, you are helpless in the jungle.

Since ordinary leather field shoes seldom hold together for more than a week of jungle marching in the wet season, carry a pair of light rubber-soled sneakers on a long jungle march. Sneakers have been for years the favourite footwear of jungle natives. Now Japanese jungle troops are using sneakers, and an improved rubber-soled fabric jungle boot will soon be available for Army jungle troops.

Tropical ulcers and septic sores can considerably impair the efficiency of the jungle soldier. They are best avoided by wearing correct protective clothing, by not scratching itchy spots, by keeping the skin clean, and by putting iodine on all pricks, scratches, abrasions, and bites, afterwards covering them with plaster, which is allowed to remain until it falls off.

Snake-bite

19. The dangerous snakes in New Guinea are the taipan and the death adder.

First Aid

- (i) If the bite is on a *limb*, immediately apply a ligature round the arm above the elbow or the thigh above the knee. After the first half hour lift the ligature for a few seconds every 20 minutes.
- (ii) Wash venom off the surface with water or urine.
- (iii) Cut out the bitten part by pinching up the flesh and cutting off with a sharp knife. This must be done within three minutes to be effective.
- (iv) Apply suction with mouth and spit out sucked-up fluid.

- (v) Apply field dressing.
- (iv) Get medical aid with anti-venene as quickly as possible.

Sleeping in the Jungle

20. Sleeping in the jungle is an art. Remember these facts about jungle sleeping:—

(a) To get a refreshing sleep in the jungle, you must always work before you turn in.

(b) The first rule for successful sleeping is to get off the ground. Being off the ground will give your skin a chance to dry out and will keep you away from insects.

(c) Sleep in a hammock if possible. In all wet, tropical countries, the smartest jungle natives and professional explorers sleep in hammocks. Certain of our soldiers already have a combined hammock, mosquito net, and rainproof fly. It weighs less than an issue shelter half and blanket. In it a soldier can sleep comfortably in a swamp or a jungle hillside.

(d) When you have no hammock, if possible make a jungle bunk of sticks, vines and leaves; at least make a thick pile of leaves to keep you off the wet ground.

(e) Sleep as nearly naked as the night coolness will permit. Clothing keeps your skin from drying. Also a cool night's sleep is good for you.

(f) Always protect yourself from mosquitoes by sleeping under a net.

(g) Make sure that if rain comes during the night you will not get wet.

(h) Never make camp near a swiftly flowing stream; you cannot hear your enemy approaching above the roar of the river.

Equipment and Clothing

21. A sharp machete must be in the hands of every real jungle soldier. The poorest jungle native treasures his machete. It is his chief means of livelihood, movement and survival. Without a machete you are almost helpless in some jungles. But with a good machete to help you, no jungle is impenetrable. Learn to care for, preserve and use your machete, your most vital jungle tool and weapon. Below are some helpful rules:

(a) Keep you machete razor sharp, with a thin tapered edge. Never allow your machete to keep the axe edge it has when new.

(b) Only sharpen your machete on a stone you wet with water. Never under any condition sharpen a machete on an emery wheel, a fast power grindstone or a file, under penalty of ruining your blade.

(c) Leave your machete handle smooth. Do not wrap it with adhesive tape or cord.

(d) Learn how to use your machete like a native, swinging it with an easy arm and wrist movement that permits fast, clean cutting.

(e) Always cut limbs and vines on a slant.

(f) Do not grasp limbs you are going to cut. Use a hooked stick to move brush into cutting position.

(g) Be very careful not to hit anyone with your machete, and keep at a healthful distance from all machete-men.

22. Jungle clothing and equipment should be specialized. Clothing should be light, yet thick enough to give protection against insect bites, grass seeds, etc. Long-sleeved shirts and slacks with gaiters should always be worn. A heavy cotton shirt is good. No undershirt

is necessary. In bad tick country a one-piece zipper closing suit is ideal. A good jungle hat should be light, rainproof, ventilated and flexible. A light wool undershirt or shirt replaces a blanket for sleeping. No raincoat is carried. All loads, including ammunition, are best carried hung from the shoulders, since belts cause skin irritations and make clothing hot. A suitable jungle pack should be roomy, rainproof, easily adjusted, cool and comfortable. The Finnish style ski-pack, with metal frame and butt strap that keep the pack from touching the wearer's back, is ideal.

Carry only essential equipment. Pack no extra clothing except one pair of socks and one underwear shorts. Leave behind all luxuries.

Whatever equipment you take into the jungle, you must give it the very best care possible. No supply sergeant is going to replace a broken part that may mean the difference between life and death to you.

23. The care of weapons in the humid tropics must be unending. All metal rusts astonishingly fast. No matter how exhausted you may feel, you must clean and oil your weapons at least once a day to keep them dependable. Especially must you care for your weapon's bore. Also you must clean and oil your ammunition and clips regularly.

To protect metal from rusting in continual rain and damp, rub a thick grease or vaseline on the metal when it is clean and dry. Grease or vaseline will give much more lasting protection than will ordinary light sperm oil.

Hints on Junglecraft

24. Jungle rivers and swamps are usually no great problem for skilled soldiers. Remember always be ready

to swim when around water. Even if you are in a big wooden boat in smooth water, be sure that your pack, belt and arms are off your body. Tie them to the boat. Then if there is an accident, the boat, and not you, will have to hold up your equipment.

Never try to swim your equipment across any stream without buoyant support such as a log, a simple raft or a meteorological balloon, a prize possession for any jungle soldier.

25. Do you know how to walk in the jungle? Probably you do not. So here are a few hints to help you when you start learning to walk:—

(a) Always put your feet down with care on the best spots you can reach.

(b) Put your heels down flat, and walk off your heels. You will tire yourself needlessly if you rise on your toes when walking across wet or slippery ground. Your heels are the best points of traction.

(c) Have a few hobnails put into your shoes.

(d) Don't try to walk fast in the humid tropics. Easy swinging steps are best.

(e) Take short steps when going up hill; rest at the top.

(f) Get off your feet whenever you can. Take a five-minute break every half hour. March all day long, but take many short breaks to cool off and rest.

(g) Never attempt to tear your way through vines or other jungle growth. Save energy by pausing to cut the vine or untangle yourself.

(h) Pick your route carefully and notice the country you pass through. Don't just blunder ahead.

26. When lost you are only in danger if you lose your head. Fear of being alone in the jungle drives some men to panic and exhaustion. This fear can be easily overcome if you know that:

(a) You are not lost unless you have no idea in which direction you should go.

(b) You can march for many days without any food at all, provided you keep calm.

(c) You will never find a jungle where it is impossible to find some habitations within a week's march.

(d) If you are in enemy country, you should stay off trails whenever possible.

(e) River and stream valleys are the lines of human travel and settlement. Always work your way down streams to find people.

27. Elementary junglecraft must be learned by every jungle soldier. Junglecraft is mainly the ability to see simple things and to know what those simple things mean. You can learn only by jungle experience how to track a man, to see old machete marks in thick country, to cross swift river fords without being knocked down, to find jungle food and to see animals and men in the jungle before they see you.

Treatment of Natives

28. Jungle natives will be your friends or your enemies, depending on how you treat them. Never suppose, because a native runs barefoot or speaks a queer language, that he is stupid, or lacks self-respect. Any good soldier will treat all natives as if he were a polite stranger travelling in their country and grateful for their aid.

Do not try to bully or rush the natives. Always pay every native a fair price for everything you get from him.

Don't use terrorist methods on natives to get labour or to keep word of your whereabouts from reaching the enemy. Jungle natives move about a great deal. You could not, if you desired, eliminate even one family. Since natives when left alone and not threatened and abused will seldom take enough interest to rush news of you to the enemy, the soldier who acts ruthlessly towards natives is working against himself. Once a soldier has personally wronged a backward native, that native will become our active enemy even if he has never heard of Hitler or Pearl Harbour.

Never steal food from native gardens. If there are any natives about, buy it from them—food is cheap. If natives are absent, leave payment for food taken.

Treat native women as you would like your own womenfolk treated.

Personal Kit

29. Several important personal items for jungle use should be yours to-day. Never forget that to-morrow you may be fighting in the jungle alone. If your company will not supply you with all of these items, then spend the price of a few beers to buy these few essentials for yourself:—

(a) A sharp 18-inch machete. Every jungle native has a machete, the most useful possession of any man in the jungle.

(b) A compass, even if it is a very cheap or small one.

(c) A small bottle of iodine, with an applicator top, for cuts, bites and wounds. Always keep your iodine in your pocket. Use it immediately when needed. In an emergency you can use ordinary iodine to make

jungle water safe to drink. Put three drops in your almost full canteen, and then wait 30 minutes before drinking.

(e) A little anti-fungus and athlete's foot medicine, such as Fraser's Solution or Whitfield's Ointment.

(f) A small bottle of quinine or atebrin pills for malaria.

(g) A small roll of adhesive tape for first aid, and for patching holes in mosquito net.

(h) Some good insect repellent.

(i) A waterproof match container, or a dependable cigarette lighter.

(j) A small flashlight, preferably with a blue lens, and two extra batteries.

(k) Some salt, preferably in tablet form, to save you from heat fatigue and cramps.

(l) One hundred yards of strong, light string, to pull the pins of your grenades used in ambushes.

All of these little things together weigh less than the useless water in two cans of beans.

Physical Fitness

30. For outstanding physical fitness there is no substitute. No matter how much you know about life in the jungle, or what fine jungle equipment you have, you are completely useless unless you can march for days and attack your enemy. You must learn to endure hardships. You must learn to attack alone when the inviting jungle stands ready to hide you. To-day, before the bullets are cracking close to you, you owe it to yourself and to your country to train your body and willpower to conquer the stern problems that fighting in the tropics will demand.

SECTION III—THE SOLDIER'S TEN COMMANDMENTS

31. 1. Fight to win. Use all your strength and cunning. Surprise and defeat your enemy.
2. Learn your job. Then do it. Dangers and hardships can't stop a jungle soldier.
3. Use cover skilfully. The jungle is your friend.
4. Guard your health. Without health you are useless in the jungle.
5. Protect your arms and equipment. Never leave them. You can't live without them.
6. Keep calm. Keep silent. Keep mobile. Keep alive.
7. Make every shot count. Never fire blindly. Save ammunition.
8. Use team work. Do your part, especially when alone.
9. Never surrender. Withdraw into jungle cover. Or kill one more enemy.
10. Strike where it hurts most, when it hurts most.

SECTION IV—SHORT VOCABULARY OF EVERYDAY WORDS AND PRONUNCIATION OF MOTUAN

32. The following is an extract from the Motu Grammar, where method of spelling and pronunciation have been used.

"The Alphabet consists of nineteen letters—a, e, i, o, u, b, d, g, h, l, m, n, p, r, s, t, v, and two compound letters kw and gw.

The vowels have the continental sound and each may be long or short as in—

at, father;	met, mend;	
on, more;	put, tooth;	it, teeth.

There is no fixed rule for accent. Usually it is on the penultimate but the exceptions are numerous, and can be noted and learned only by listening to the conversation of Motu people."

A good rule to use is to break the word up into syllables each ending in a vowel, viz.:—

Hen	Ko-ko-ro-ku
Hot	Si-a-hu

**The
Alphabet**

	Has a long sound as in "father" and short
A	as in "mat."
B	As in English.
C	Not used.
D	As in English.
E	Has two sounds, short as in "met" and the same sound lengthened.
G	Has two sounds, one hard as in "good," the other ch as in "loch."
H	As in English.
I	Has two sounds, as ee in "teeth" and i in "it."
K	As k in "kitten."
L	As in English.
M	do.
N	do.
O	As in "open."
P	As in English.
R	do. (hard to distinguish from L).
S	do.
T	do.
U	do. full, pool.
V	do.

A short vocabulary of everyday words.

English—Police Motuan

(A)		(C)	
Abdomen	Bogana	Call	Boiboi
Another	Idau	Canoe	Vanagi
Kind		Carry	Huaia
Afternoon	Adorahi	Close	Kailakaila
Aid or	Durua	Cloth	Dabua
Assist		Coconut	Niu
Alive	Mauri	Cold	Keruma
Alone	Sibona	Come	Mai
Altogether	Ibonai	Cook	Nadua
Axe	Ila	Crab—	
		Large	Bawa
		Small	Dubara
		Crayfish	Uru
		Crocodile	Huala
(B)		(D)	
Bad	Dika		
Bamboo	Baubau		
Banana	Biku	Day	Dina
Bathe	Digu	Dead	Masi
Beach	Kone	Deaf	Taina-
Behind	Muranai		kudima
Big	Bada	Dog	Sisia
Black	Korema-	Drink	Inua
	korema	Dry	Kaukau
(E)		(F)	
Boy	Mero		
Break	Kwaidu	Earth	Tano
Bring	Mailaia	Eat	Ania
Burn	Gabua	Egg	Gatoi or
Buy	Hoihoi		Kumkum
Blood	Rara	Enough	Vadeni
		Eye	Matena

(F)

Fall	Moru
Far	Daudau
Fill	Hahonua
Finish	Hadakoa
Fire	Lahi
Fish	Gwarumi
Flood	Abata
Food	Aniani
	(Kaikai)
Forest	Uda
Fowl	Kokoroku
Full	Honu

(G)

Garden	Uma
Girl	Kikeni
Go	Lao
God	Dirava
Good	Namo
Goodbye	Ba Mahuta
Gun	Ipidi

(H)

Hair	Huina
Hand	Imana
Handkerchief	Muku
Hard	Auka
Hat	Kwara Gauna
He	Ia
Head	Kwarana
Heart	Kudona
Hot	Sighu

(H) continued

Help	Durua
Hit	Botaia
Hold	Dogowatau
Hook (fish hook)	Kimai
House	Ruma
How many?	Hida
Hungry	Hitolo

(1)

I	Lau
Immedi-	Harihari
ately	
Inland	Gunika
Iron	Auri

(J)

Joke Hevasia

(K)

Kill	Alaia
Knife	Kaia

(L)

Large	Bada
Laugh	Kiri
Leech	Doma
Lie	Koikoi
Little	Maragina
Log	Au
Long	Lata
Looking	Varivari
Glass	
Lost	Boio

(M)	
Make	Keraia
Man	Tau
Mat	Geda
Medicine	Muramura
Middyay	Dinatubu
Milk	Susu (Rata)
Moon	Hua
Morning	Dabai
Mosquito	Namo
Mud	Kopukopu

(N)	
Nail	Ikoko
Name	Ladana
Net—	
Fishing	Reka
Mosquito	Tainamo
Night	Hanuaboi
No	Lasi or Las
Noise	Regena

(O)	
Outside	Murimuri
Overturn	Mutu
(in canoe	
or boat)	

(P)	
Paddle	Bara
Paddle	Baraia
(to pull	
a canoe)	
Pain	Hisisi
Payment	Davana

(P) continued	
Piece	Taina
Pig	Boroma
Pigeon	Buni
Price	Bavana
Pull	Veria
Put	Atoa

(Q)	
Quickly	Haraga

(R)	
Rain	Medu
Rat	Pita or Bitu
Raw	Kasiri
Red	Kakakaka
Ripe	Magi
River	Sinavai
Rudder	Tari
Run	Heau

(S)	
Salt	Damena
Sea	Davara
See	Itaia
Sick	Goree
Sit	Helai
Skin	Kopina
Sky	Guba
Sleep	Mahuta
Small	Maragina
Smell	Bonana
Snake	Gaigai
Soft	Manoka
Some	Haida

	(S) continued		(V)
Stop	Vadaeni or Hadakoa	Vomit	Mumuta
String	Varo		(W)
Swim	Nahu	Wait	Naria
	(T)	Walk	Raka
Table	Pata	Water	Ranu
Talk	Hereve	White	Kurokuro
Thick	Uduna		(Y)
	(U)	Yam	Maho
Under	Henuai	Year	Lagani
Untie	Ruhaia	Yes	Io, oibe

Cardinal Numbers

One	Tah	Six	Taura-toi
Two	Rua	Seven	Heetu
Three	Toi	Eight	Taura- Harnee
Four	Har-nee	Nine	Taura- Harnee-ta
Five	Ee-ma	Ten	Ku-ota

SECTION V—NATIVE FOODS—RECOGNITION AND PREPARATION

33.
Sweet Potato
(Pidgin:
"Kaukau,"
Motuan:
"Kaima")

Description:

A starchy root crop.

The plant is distinguishable by its long runners. These runners have a small dark green leaf.

The food, which is the sweet potato, is to be found at the base of the vines in clusters, which vary in their numbers, at about a foot under the surface of the ground.

Methods of Cooking:

Remove dirt.

The simplest method of cooking is by baking in the coals of a fire until it is soft.

A baked sweet potato is firm enough to carry in the pocket for a day.

It can also be boiled, roasted or fried.

The young leaves can be boiled and make a good vegetable.

Precautions:

Care should be taken to see that the crop has not been affected by disease or blight. It can be easily ascertained by breaking open the potato. The diseased potato can be distinguished by the brown lines running through it. If potato is diseased, do not use.

Taro

(For Pidgin
and Motuan
use word
"Taro")

Another starchy root crop.

The plant is similar to a lily, with large dark green leaves growing from thick light green coloured stems. The plant is about four feet high.

The foot is a large bulb growing at the base of the leaves about a foot under the ground surface.

The skin of the taro is a dark brown colour and the food is either white, creamy, blue or purple. The white taro makes the best food.

Taro grows in cultivated areas. There is a variety of wild taro to be found in the bush. This has a much larger leaf and its food has a very sharp taste. Wild taro is edible in an emergency but a weak stomach may reject the food.

Methods of Cooking:

Taro **must** be well cooked and under no circumstances must it be eaten raw or half-cooked.

Remove the dirt from the skin. Taro can be baked or boiled as with sweet potato. When soft the food is cooked.

Yams

(For Pidgin
and Motuan
use word
"Yam")

Description:

A starchy root crop.

The plant can be distinguished by its long ivy-like vines which grow on planted sticks to a height of seven or eight feet. Instead of using sticks natives often take advantage of small ring-barked trees in newly cleared

areas. The "creeper" has thin green stems with smallish dark green leaves, which are full or lobed. It has small bell-shaped, greenish flowers.

The yams themselves are thick tubers which are at the base of the stem of the creeper. They are usually of a shape and size resembling that of a person's forearm. In sandy soil they grow much larger and large ones have been known to weigh as much as 100 lbs. The yam has short hairy roots growing on it. The skin of one variety is of a yellowish-brown colour and other varieties have a purple colour. The colour of the food is creamy or purplish.

Cassava.
(Pidgin
word and
Motuan:
"Maniok"
or
"Tapiok")

Description:

Generally cassava should not be eaten unless no other food is available.

A starchy root crop.

The cassava is a semi-shrubby perennial with cylindrical tapering roots varying in size up to 3 feet long and 2 inches to 3 inches in diameter—the roots containing a milky juice. The plant has long slender knobby stems about 6 feet high having large spreading long-stalked leaves divided into three to seven narrow segments, dark green in colour. There are two varieties of cassava—sweet and bitter. The stems of the former have red joints whilst those of the latter are white. The sap of the bitter cassava contains hydrocyanic acid and is therefore poisonous. However, this poison can be rendered innocuous by cutting open

the roots, slicing and drying out in the sun—or by long boiling. It is always safer to treat all cassava in this manner. The food is the long tapering root of the plant.

Method of Cooking:

After removing the dirt from the skin of the food can be baked or cut into slices and boiled as with sweet potato. The precautions mentioned under the heading of "Description" should be taken. Quite a good flour is procurable from this root by grinding dried-out slices of the cassava.

Breadfruit
(Pidgin
word:
"Kapiak")

Description:

Breadfruit is the fruit of a tree which has large acutely lobed glossy leaves. The tree grows to a height of 50 feet. The fruit is round, about the size of a melon, with a surface of small rounded projections and is dark green in colour.

Method of Cooking:

The common method of cooking is to bake the whole fruit in the coals of a fire and then scoop out the interior which has a taste comparable to that of boiled potatoes and sweet milk. The interior, when cooked, can be eaten as a vegetable or with milk and sugar as a pudding. To preserve the fruit, cut into slices and dry in the sun. A flour can be obtained from grinding the dried slices. The kernels of the breadfruit, which resemble chestnuts, can be roasted and eaten.

Sago

(Pidgin
word:
"Saksak"
Motuan:
"Rabia")

Description:

Sago is obtained from a palm attaining a height of 40 feet with large leaves and growing on the swampy banks of rivers or in large areas of swampy country. The palm does not grow in altitudes over 3,000 feet. The width of its trunk is at least 18 inches. This width of trunk and the fact that the sago palm grows only in swamp country, or on the edge of such country, makes it easily identifiable.

The sago, which is starchy food, comes from the pithy trunk of the palm and takes considerable time and labour to produce. Once the palm matures, which is when it produces at its head a flowery spike, it is useless. To test whether a palm is ready to be used for the production of sago, it is advisable to cut out a small portion of the pithy trunk with an axe. This small portion is well chewed and the resulting juice is emitted into the palm of the hand. Allow the juice to remain for a minute and then slowly pour off. If a starchy sediment remains in the hand, the palm is ready to be used—but not if the sediment flows away with the liquid.

Preparation of Sago:

The palm is felled near its base. The trunk is then divided into sections for convenience in the preparation and the bark, which is about $\frac{1}{4}$ inch thick, removed, leaving the pithy, brownish-yellow inner portion exposed. This pith has to be pounded up

to disintegrate it into a pulpy mass which has then to be kneaded with water through a strainer coarse enough to allow the sediment to pass through it with the water into the container. The sediment is a white, starchy powder. A constant kneading with a plentiful supply of water is required so as to extract all the sago from the pith. Good water should be used if possible. The sago will settle in the container whilst the water carrying it can flow out. When sufficient quantity of sago is obtained, put it in fairly porous containers each holding about 20 to 30 lbs. This can be done by wrapping up the sago in large leaves or bark. Hang up the bundle and allow the water to drain out. Brackish water will make the sago grey.

In native inhabited country, prepared sago ready to be cooked is often found in large bark or leaf-covered bundles of about 20 lbs. in weight hanging from trees near a sago swamp or in native houses in that vicinity. Prepared sago is a floury starchy mass, light brown in colour.

Even in humid climates dried sago will last for approximately a month, in high altitudes longer.

Method of Cooking:

Boiling water is poured on to the sago as with starch and it is stirred briskly over a fire, constantly taking off the scum as it appears on the surface. It is boiled until it becomes the consistency of glue. In this

form it is not very palatable unless sugar is added to it.

Sago can be wrapped with leaves into small bundles and baked in the coals of a fire. Another method is to make a dough by adding water to the sago. Pour the dough into a frying pan to a depth of about $\frac{1}{4}$ inch and fry. Add salt to taste.

Coconut

(Pidgin:
"Coconut"
and
"Kulau,"
Motuan:
"Nui")

Description:

A slender tall palm to be found all along the coastal areas and in inland areas up to an altitude of about 1,000 feet. The coconut in its young stages is green in colour, ripening to a medium brown. The nuts grow in clusters at the head of the palm and fall when ripe. The consumable portion of the nut is the white flesh in the centre. Though the flesh of the coconut in all stages of its maturity can be eaten raw, the best food is that to be found in the ripe brown nut. The pithy substance often found in the centre of the brown nuts lying on the ground at the base of the palm is a pleasant food which can be eaten raw, but does not possess a high food value. Especially when the nut is in its young stage the liquid in the centre is a very pleasant thirst-quenching drink.

Method of Cooking:

The flesh of the nut is best eaten raw, but it can be grated and boiled with sago.

NOTE: Two dry coconuts tied together with strips of the husks will float a man across a river.

Bananas

(Pidgin:
"Banana,"
Motuan:
"Biku")

Description:

The banana grows in large bunches which hang from the top of the tree. When the fruit is ripe the skin of the banana is of a light yellow to red colour, and the flesh under the skin is of soft to firm consistency. The small banana with a light yellow coloured skin is the most palatable. If the flesh of the banana is hard it is not advisable to eat it raw as this is most indigestible. The fruit of the banana is of a high nutritive value.

Method of Cooking:

Bananas can be baked in their skins in the coals of the fire, or boiled in water. If the raw fruit is harsh to the taste and hard, it will become edible on boiling. This applies also to the green banana.

Corn or Maize

(Pidgin:
"Corn")

Description

Young corn is the best for consumption, and the age is judged from the colour of the leaves enveloping the cob. These leaves change their colour as the corn ages from very light green to brown. Corn is an excellent food and is to be found in most native cultivated areas.

Method of Cooking:

Without removing the leaves cook the cobs by baking in the fire, or remove the leaves and boil the cobs in water. An excellent breakfast food can be made by picking the corn in the near-ripe stage before the milky fluid is dried out from the

grain. The cob is then scraped on a grater (which can be easily made by punching holes in a piece of tin with a nail). The resulting maize-meal is then placed in a saucepan with a cup of water to each cup of maize-meal. Add salt and then boil slowly until it attains the consistency of porridge. With sugar and milk added the result is most palatable, as well as possessing a high food value.

Description:

**Native
Spinach**
(Pidgin:
"Aibeka")

A shrub with slender stems which vary in colour from reddish-green to green. It has small dark green leaves. The leaves bear a resemblance to mint in shape. The shrub grows to a height of about eight feet.

Method of Cooking:

Pick the young leaves and boil in the same manner as spinach.

Greens
(Pidgin:
"Kumu")

The tender young leaves of certain shrubs, known to most natives, growing in the bush can, by boiling them until soft, be used as greens.

Pit
(Pidgin:
"Pitpit")

Description:

The plant resembles thin, weedy sugar cane and is to be found on the banks of creeks and rivers. It has tall stems, reddish-green in colour, and attains a height of about 6 to 10 feet. Its leaves, which are normally green but yellow and sere in the older plant, are about 3 to 4 feet long and

only 4 to 5 inches wide. The stem itself is covered closely with dry leaves of a dirty yellow, and when this is stripped the reddish-green stem is evident.

Method of Cooking:

The young tender shoots are the consumable portion of this plant and these can be baked in the coals of the fire—without having removed the leaves which closely envelope the shoot. After baking the leaves are removed and the resulting food can well be described as "native asparagus." The shoot can also be boiled in water until soft—in this case the leaves are removed first.

**Bamboo
Shoots**

(Pidgin:
"Mambu")

Description:

The edible bamboo grows in smaller clumps than those found in Australia, and the leaves are a more brilliant green in colour—except when the bamboo is ageing when the leaves become yellow; otherwise the plant is exactly similar to the southern variety.

Method of Cooking:

As with Pit.

Sugar Cane

(Pidgin:
"Suga")

Description:

The plant is the same as that grown in Queensland—has reddish coloured stems of about 1 inch to 2 inches in diameter and attains a height of 5 feet to 7 feet.

Method of Cooking:

The cane should be cut with a knife when desired for use and not pulled up by the roots, as these will shoot again.

The cane can be rendered into a syrup by removing the hard outer covering with a knife and cutting the cane itself into small portions and boiling well for about 12 hours. A good thirst-quencher can be obtained by chewing the juicy centre—but the juice only should be swallowed and not the pith.

Pineapples

(Pidgin:
"Painap")

Description:

The pineapple grows from the centre of a small plant which throws out long stiff green leaves, the edges of which are spiked. The pineapple when ripe has a bright golden colour—usually tinged with red around the base of the small round projections which make up the outer surface of the fruit.

Beans

(Pidgin:
"Bin")

Description:

The native bean resembles closely a small ivy creeper climbing up a planted stake. The stem is green and thin and throws a small dark green leaf.

The bean itself, which grows from the stem, is long and narrow—up to 2 feet in length—and is green in colour. Plant attains a height of between 5 feet and 8 feet.

Method of Cooking:

The bean is sliced into small pieces and boiled in water in the same manner as the French bean.

Paw Paw

(Pidgin:
"Pawpaw")

Description:

The paw paw is the fleshy fruit of a smallish tree growing to an average height of 12 feet. The tree has largish green leaves and the trunk of the tree is narrow and soft—it contains a milky juice—and is marked into many sections by seams. The fruit itself is about the size and shape of a small rugby football and changes its colour from green to yellow when becoming ripe. The fruit grows from the trunk immediately under the "branches" which are right at the top of the tree.

Method of Cooking:

The fruit is, of course, best eaten raw when ripe—but the green pawpaw can be cut into slices and boiled in water. The result is very similar to marrow.

Cucumbers

(Pidgin:
"Kukumba")

Description:

The cucumber is the same as the apple cucumber of Australia, with the exception that the fruit takes on a real yellowish-brown colour. The cucumber grows from a vine which has long greenish-white runners which bear green leaves divided into segments.

Limes

(Pidgin:
"Muli,"
Motuan:
"Sipora")

Description:

The lime comes from a tree which is similar to the southern lemon tree. The lime usually remains green in colour even when ripe, and is slightly smaller than the ordinary lemon.

**Grapefruit
and
Pomelo**

(Pidgin:
"Pomelo")

Description:

The grapefruit and pomelo are closely related and are very similar in appearance—the pomelo being usually larger than the grapefruit and having a red flesh, whereas the grapefruit's flesh is normally yellowish. Both grow on a tree which is very similar to an orange tree and the fruit itself resembles a large orange with the exception that the outer skin of the fruit is usually yellow when ripe.

Galip Nut

(Pidgin:
"Galip")

Description:

A large tree possessing quite a dense foliage which does not throw its branches until near the top. The tree attains a height of 40 to 50 feet and the trunk (about 2 feet in diameter), is a light grey in colour.

The kernel is contained in a hard shell which has an outer softer black covering—closely resembling a prune in appearance. The galip tree usually grows near the coast, and bears its fruit every year about March, April, May.

Laulau

(Pidgin:
"Laulau")

Description:

A medium sized tree with a dark glossy leaf about 6 inches long by 2 inches in width. The fruit grows from the branches and is white when unripe and red when ripe—about the size of a small apple. When the fruit is commencing there is a carpet of red needles which fall from the tree on to the ground. The fruit is eaten like an apple.

Ton

(Pidgin:
"Ton")

Description:

A large tree which produces clusters of fruit like small plums, which change colour from green to russet to black as the fruit ripens. The flesh is the edible portion of the fruit.

Aila Nut

(Pidgin:
"Aila")

Description:

The aila nut is very similar to the galip, but is less common and can be found a little further inland than the galip, usually growing wild in the bush.

Mango

(Pidgin:
"Mango,"
Motuan:
"Waiwai")

Description:

The mango tree has a dense spreading and glossy foliage and averages about 30 feet to 40 feet in height. The leaves have pointed tips and are dark green in colour. The fruit is oval in shape—about 4 inches or 5 inches long and 2 inches or 3 inches in diameter—and is yellow in colour when ripe. The fruit is very juicy and has a slightly tart taste.

Pandanus

(Pidgin:
"Karoka")

Description:

The Pandanus has slender palm-like stems often supported by curious prop roots. The branches are terminated by a crown of sword-shaped usually spiny leaves. The trunk is covered with small spikes, painful to touch. The Pandanus usually grows in very moist soil and can be found at altitudes of up to 10,000 feet, near mountain streams and creeks. The Pandanus produces a large oval-shaped fruit about 18

inches in length and 9 inches in diameter, and red in colour. The surface is rough and is covered by small round projections. Upon breaking open the fruit it will be found to contain a series of small narrow oval containers closely packed together. These small containers are grey in colour and contain a kernel which contains oil and is very pleasant eating. The small grey containers are best dried out in the sun before cracking open to obtain the nut.

**Water
Hyacinth**

Description:

Red, white and blue water lilies with large green leaves on greenish-white stems. Grows in ponds or marshes.

Method of Cooking:

The root bulbs of the Water Hyacinth can be boiled—these taste like turnips. The leaf stems can be skinned and eaten raw like celery. The seed nuts which form after the flowers can be skinned and eaten raw—have a taste comparable to green almonds. If salt is lacking, the leaves can be burnt and the resulting ash can be mixed with the food to be cooked.

**Non-Edible
Nuts**

(Pidgin:
"Pikanini
Bilog
Diwal")

There is a nut produced by a tree called the "Candle Tree" as it bears a shoot similar in shape and colour to a candle and which, when dried out, can be lit in the same way as a candle.

Another nut is grown on a shrubby tree of medium height, the nut being about the

size of a large marble, and is easily distinguishable by its brilliant electric blue colour.

Care should be taken, however, with all other nuts—which in pidgin English are classified under the heading of “Pikanini bilog diwai”—and unless there is a native of the particular area present to identify and give information concerning the nut it is advisable NOT TO EAT IT. A number of nuts will be found in the bush, particularly in mountainous country, red, orange, and yellow in colour. THESE ARE NOT EDIBLE, and should be avoided no matter how hungry the person finding them should be.

SECTION VI—MEDICAL EQUIPMENT, Etc., ISSUED TO THE SOLDIER

AUSTRALIAN SUPPLIES

1. Quinine or Atebrin.
2. Iodine.
3. Whitfield's ointment.
4. Sodii bicarb.
5. Individual water sterilizing outfit.
6. Mosquito cream or Stayway.
7. Sticking plaster.
8. Superfatted soap.
9. Sulphanilamide tablets.
10. First aid dressing.
11. Foot powder.
12. Salt tablets.

AMERICAN SUPPLIES

1. Chlorine tablets.
2. Frazer J. solution.
3. Iodine.
4. Aspirin.
5. Sulfanilamide.
6. Quinine.
7. First aid packet.
8. Waterproof adhesive tape.
9. Insect repellent.
10. Salt tablets.

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